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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------|------------------|
| 09/654,177 | 09/01/2000 | Ahmad Jalali | PA000376 | 6254 |
| 23696 | 7590 | 09/20/2004 | EXAMINER CORRIELUS, JEAN B | |
| Qualcomm Incorporated Patents Department 5775 Morehouse Drive San Diego, CA 92121-1714 | | | ART UNIT 2637 | PAPER NUMBER |

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/654,177

Applicant(s)

JALALI ET AL.

Examiner

Jean B Corrielus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 and 18 is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/1/00 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/22/04 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the memory, as recited in the claims, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

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of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: the specification must be amended to update the status of the copending and related applications recited throughout the specification.

In addition, page 7, lines 3-5 recites "the memory storage unit is operative to **store coefficient adjustment information, wherein the associated coefficients are adjusted according to the coefficient adjustment information**". However, page 31 lines 13-14 **only recites** that the memory stores the coefficients for latter retrieval. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a

whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9 and 13 -15 are rejected under 35 U.S.C. 103(a) as anticipated by Offord et al. (U.S. Patent No. 5,901,075 of record) in view of Gurcan US patent No 4,985,902 and further in view of Nikias et al US Patent No. 5,282,225.

As to claim 9 and 13-15 Offord teaches an apparatus (and a method) that comprises a plurality of tap weights in a FIR filter (equalizer) whose coefficients are associated with the data signals received during assigned time slots (see Abstract, col. 2, lines 33-41, col. 3, line 66-col.4, line 5), a summing node (summer) 18 coupled to the plurality of the tap weights to sum the tap outputs (Fig. 2 and 3, and col. 1, lines 37-48) and a processor (memory) 38 to process the indicated tap weights coefficient which get updated during the assigned time slots(col.3, lines 54-65 and col.5, lines 26-31) as claimed in claims 9, 13 and 14. However, Offord does not explicitly teach that the number of taps being equal to a total number of symbols. In addition, as noted in the applicant's comment filed on 7/22/04, page 6, last paragraph-to page 7, line 2, Offord does not teach the further limitations of storing coefficient adjustment information in a memory wherein the associated coefficients are adjusted according to the coefficient adjustment information.

In the same field of endeavor, Gurcan teaches that the number of taps being equal to a total number of symbols see col. 3, line 68-col. 4, line 2. Given that fact, it would have been obvious to one skill in the art to incorporate such a teaching in Offord

in order to improve the performance of the equalizer as taught by Gurcan see col. 3, line 65. In addition, Nikias et al teaches the further limitations of teach the further limitations of storing coefficient adjustment information in a memory wherein the associated coefficients are adjusted according to the coefficient adjustment information see fig. 5A, abstract and col. 2, lines 6-23. Given that fact, it would have been obvious to one skill in the art to one skill in the art at the time the invention was made to incorporate Nikias et al in both Offord and Gurcan in order to achieve fast convergence of the equalizer coefficients as taught by Nikias et al see abstract.

Offord further discusses generating carrier to interference ratio (C/I) at the output of the summing node (summer) 18 whose estimate is given in equation 7.419 (col.4, lines 26-37) as claimed in claim 10 and 15.

6. Claims 10, 11, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Offord et al. (U.S. Patent No. 5,901,075 of record) in view of Gurcan further in view of Nikias et al US Patent No. 5,282,225 and further in view of Chin Hwa Lee et al (Signals, Systems and Computers 1994, Vol. 1, pp 89-93).

As per claims 10, 11 and 16, as applied to claims 9 and 13 above, Offord, Gurcan and Nikias et al teach the invention substantially as claimed but does not explicitly teach the further limitation of estimating a C/I for each time slot.

Lee, however, discusses generating variable data rate based on the carrier to noise ratio determined for each time slot (carrier to interference ratio) during as assigned time slot in wireless technology to increase communication capacity (page 91, col.2). It would have been obvious to an ordinary person skilled in the art to apply Lee's

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teaching of generating data rate based on C/I estimate calculated by the processor 38 in Offord, Gurcan and Nikias et al in order to produce the required tap weight coefficients for the FIR filter in order to save power consumption by the mobile station, and to obtain higher data rate, a balanced link budget between mobile and base station during transmission and maintain link quality of the transmission at the time the invention was made.

As per claim 12, it would have been obvious to one skill in the art to incorporate a lookup table for correlating C/I estimates and data rates so as to increase system performance.

Allowable Subject Matter

7. Claims 17-18 are allowed.

Response to Arguments

8. Applicant's arguments with respect to claims 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean B. Corrielus whose telephone number is (571) 272-3020. The examiner can normally be reached on Monday-Thursday from 7:00 A.M. to 5:30 P.M.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-3086.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-2600.


Jean B. Corriellus

Primary Examiner

TC-2600

9/16/04